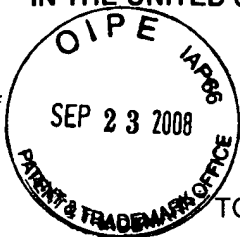


In re Patent Application of



Atty ARC-380-45

Dkt.

C# M#

KOMETANI et al

TC/A.U.

1796

Serial No. 10/724,608

Examiner: Sergent

Filed: December 2, 2003

Date: September 23, 2008

Title: CATALYST FOR PRODUCTION OF A TWO COMPONENT POLYURETHANE  
SEALANT**Mail Stop AF**Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**RESPONSE/AMENDMENT/LETTER**

This is a response/amendment/letter in the above-identified application and includes an attachment which is hereby incorporated by reference and the signature below serves as the signature to the attachment in the absence of any other signature thereon.

☐ **Correspondence Address Indication Form Attached.****Fees are attached as calculated below:**

Total effective claims after amendment 0 minus highest number  
previously paid for 20 (at least 20) = 0 x \$50.00 \$0.00 (1202)/\$0.00 (2202) \$

Independent claims after amendment 0 minus highest number  
previously paid for 3 (at least 3) = 0 x \$210.00 \$0.00 (1201)/\$0.00 (2201) \$

If proper multiple dependent claims now added for first time, (ignore improper); add  
\$370.00 (1203)/\$185.00 (2203) \$

Petition is hereby made to extend the current due date so as to cover the filing date of this  
paper and attachment(s)  
One Month Extension \$120.00 (1251)/\$60.00 (2251)  
Two Month Extensions \$460.00 (1252)/\$230.00 (2252)  
Three Month Extensions \$1050.00 (1253)/\$525.00 (2253)  
Four Month Extensions \$1640.00 (1254)/\$820.00 (2254)  
Five Month Extensions \$2,230.00 (1255)/\$1115.00 (2255) \$

Terminal disclaimer enclosed, add \$130.00 (1814)/ \$65.00 (2814) \$

☐ Applicant claims "small entity" status. ☐ Statement filed herewith

Rule 56 Information Disclosure Statement Filing Fee \$180.00 (1806) \$ 0.00

Assignment Recording Fee \$40.00 (8021) \$ 0.00

Other: \$ 0.00

**TOTAL FEE \$ 0.00**☐ **CREDIT CARD PAYMENT FORM ATTACHED.**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

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NIXON &amp; VANDERHYE P.C.

By Atty: Arthur R. Crawford Reg. No. 25,327

Signature: 



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

KOMETANI et al

Atty. Ref.: 380-45; Confirmation No. 3708

Appl. No. 10/724,608

TC/A.U. 1796

Filed: December 2, 2003

Examiner: Sergeant

For: CATALYST FOR PRODUCTION OF A TWO COMPONENT POLYURETHANE  
SEALANT

\* \* \* \* \*

September 23, 2008

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**RESPONSE AFTER FINAL REJECTION**

This is responsive to the Official Action of July 10, 2008. Claims 20, 23, 24 and 26-28 are pending in the application.

The sole issue presented is the rejection of claims 20, 23, 24 and 26-28 under 35 USC §103(a) as being unpatentable over Hagio et al ('104) in view of Laas et al ('044) and Nakamura et al ('034) and Hannah et al ('659). Applicants dispute the manner in which the prior art references are cited and applied and are concerned that it has been constructed on the basis of hindsight starting with knowledge of the present invention and then working backwards to find elements of it in the prior art. Before discussing the merits of the matter, it is useful to review the legal requirements for a rejection of the type now asserted.

To establish a case of *prima facie* obviousness, all of the claim limitations must be taught or suggested by the prior art. See M.P.E.P. § 2143.03. A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. *In re*

*Kahn*, 78 USPQ2d 1329, 1334 (Fed. Cir. 2006) citing the legal standard provided in *Graham v. John Deere*, 148 USPQ 459 (1966). The *Graham* analysis needs to be made explicitly. *KSR v. Teleflex*, 82 USPQ2d 1385, 1396 (2007). It requires findings of fact and a rational basis for combining the prior art disclosures to produce the claimed invention. *See id.* ("Often, it will be necessary for a court to look to interrelated teachings of multiple patents . . . and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue").

The use of hindsight reasoning is impermissible. *See id.* at 1397 ("A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning"). Thus, a *prima facie* case of obviousness under Section 103(a) requires "some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct." *Kahn*, 78 USPQ2d at 1335; *see KSR*, 82 USPQ2d at 1396. A claim which is directed to a combination of prior art elements "is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *Id.* at 1396. Finally, a determination of *prima facie* obviousness requires a reasonable expectation of success. *See In re Rinehart*, 189 USPQ 143, 148 (C.C.P.A. 1976).

In the Official Action, the Examiner takes the position that "it would have been obvious to utilize the salts in virtually any type of polyurethane yielding *system*, including two-component systems" and the position that "the use of virtually any unsaturated acid to block the catalyst would have been obvious in view of the teachings of the references" (Section 4 of the Official Action).

These comments ignore the fact that all the cited references except for Laas et al. (USP 5,847,044) disclose bicyclic tertiary amines such as DBU, DBN and DBD and salts thereof with acids equally without distinction (Laas et al. discloses only bicyclic tertiary amines in the free form, but does not disclose any salts of bicyclic tertiary amines).

If the Examiner's position that "it would have been obvious to utilize the salts in virtually any type of polyurethane yielding system, including two-component systems" were correct, a person skilled in the art would have expected both bicyclic tertiary amines and salts thereof to work equally in virtually any type of polyurethane yielding system, including two-component

systems. However, the reality is that free bicyclic tertiary amines do not work in the intended manner in the two-component system used in the present invention.

The discrepancy from the reality arises because the Examiner ignores the difference between the polyurethane yielding system used in the present invention and those used in the cited references. The polyurethane-yielding system used in the present invention uses an unblocked isocyanate, unlike those used in Hagio et al. (USP 4,524,104) and Hannah et al. (USP 4,952,659), and the sealant of the present invention has to cure at ambient temperature without heating, unlike the adhesive composition of Hagio et al. and the polyurethane powder coating composition of Laas et al.

Nevertheless, the sealant of the present invention is required to stay fluid for a while (i.e., have a long pot life) after the ingredients are mixed, unlike the polyisocyanate foam system of Nakamura et al. (USP 5,317,034). In the polyurethane-yielding system used in the present invention, whether the tertiary amine catalyst is in the free form or in the form of a salt makes a big difference, although it does not make much difference in the polyurethane-yielding systems used in the cited references. The Examiner seems to ignore this difference.

In this connection, although the Examiner alleges that the use of virtually any unsaturated acid to block the catalyst would have been obvious in view of the teachings of the references, none of the cited references suggest the significance of blocking the catalyst in a urethane-yielding system using an unblocked isocyanate to delay the onset of the urethane-forming reaction of isocyanate groups at ambient temperature, and the Examiner's position that the blocking the catalyst with an unsaturated acid would have been obvious is entirely based on hindsight guided from the knowledge of the present invention.

The Examiner has not given any reasoning as to how blocking the bicyclic tertiary amine catalyst would have been obvious from the cited references. It is necessary to block the catalyst to delay the onset of the urethane-forming reaction of isocyanate groups, only when the urethane-forming system fulfills the three conditions: ① it requires curing at ambient temperature, ② it uses an unblocked isocyanate and ③ it has to have a long pot life. The urethane-yielding systems used in the cited references either require heat curing, or use blocked isocyanates, or are not required to have a long pot life. Therefore, the applicants would like to strongly emphasize that the Examiner is critically mistaken to take the position that blocking the

bicyclic tertiary amine catalyst would have been obvious from the cited references.

Further, in the present invention, the unsaturated acid to be used to block the bicyclic tertiary amine catalyst is restricted to several species that can attain both a long pot life and a rapid viscosity increase.

Hagio et al. defines the catalyst to be used merely by such a generic and broad term as (C) a cycloamidine or acid addition salt thereof (*see* abstract, column 2 and column 3, lines 14-19) and does not specifically disclose or suggest the restricted species of catalyst to be used in the present invention.

Nakamura et al. discloses salts of DBU with a broad range of acids as catalysts (column 5, lines 1-40, especially lines 1-4) but does not specifically disclose any of the restricted species of catalyst to be used in the present invention.

Laas et al. discloses bicyclic amidines such as DBN as a catalyst (column 4, line 65 through column 5, line 13), but Laas et al. does not disclose salts of bicyclic amidines with acids, much less salts of bicyclic amidines with the specific acid to be used in the present invention.

Hannah et al. merely discloses the reaction product of a bicyclic amidine such as DBU, DMN with phenol or various other acidic compounds (column 4, line 65 through column 5, line 27) as a catalyst, but does not specifically disclose or suggest the restricted species of catalyst to be used in the present invention.

Thus, none of the cited references disclose specifically the restricted species of catalyst to be used in the present invention.

Although the Examiner argues that "it would have been obvious to utilize salts derived from unsaturated acids and cyclic amidines, such as DBU, DBN, and DBD, in their art recognized capacity as catalysts for polyurethane and isocyanate based polymeric systems" in Section 4 of the Official Action, the unsaturated acid to be used in the present invention to block the bicyclic tertiary amine catalyst is restricted to several specific species that can attain the required objectives of both a long pot life and a rapid viscosity increase.

It is well established that the disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus (*see, e.g., In re Baird*, 16 F.3d 380, 382 (Fed. Cir. 1994)).

Therefore, the generic disclosure of unsaturated acids in the cited references is

insufficient to make obvious the use of the specific species of catalyst to be used in the present invention.

Further responding, the present invention and Hagio et al. (USP 4,524,104) differ in both the components used in the polyurethane-yielding system.

The adhesive composition of Hagio et al. uses (A) an acrylic copolymer having NCO-reactive groups, and the acrylic copolymer (A) is prepared by copolymerizing an ethylenically unsaturated monomer (a) having at least one NCO-reactive group and an ethylenically unsaturated monomer (b) having no NCO-reactive group, and hence has a backbone solely made of carbon atoms. In contrast, in the present invention, a polyether polyol is used, and a polyether polyol necessarily contains oxygen atoms in its backbone, unlike the acrylic copolymer used in Hagio et al. Thus, Hagio et al. and the present invention are different in the urethane-forming polymer.

The adhesive composition of Hagio et al. uses (B) a blocked polyisocyanate obtained by reacting an organic polyisocyanate and a blocking agent (column 6, lines 7-10), an unblocked isocyanate such as MDI, TDI, MDI prepolymer and TDI prepolymer is used in the present invention.

The Examiner ignores this difference in the polyurethane-yielding system and merely reiterates that it would have been obvious to use salts derived from unsaturated acids and cyclic amidines in virtually any type of polyurethane yielding system, including two-component systems. However, the claims of the present application clearly specify that the use of a polyether polyol and an unblocked isocyanate is essential. Further, the adhesive composition of Hagio et al. is intended to be used in a quite different way (i.e., requires heating for curing). Although the §103 rejection over Hagio et al. in view of Laas et al and Nakamura et al. and Hannah et al. relies on Hagio et al. as the primary reference, the Examiner has not give any reasoning as to why a person skilled in the art, starting from the teaching of Hagio et al., which relates to a heat-curing polyurethane-yielding system, would have motivated to use a polyether polyol and an unblocked isocyanate instead of the acrylic copolymer (A) and the blocked polyisocyanate (B) of Hagio et al. to obtain a two-component sealant to be cured at ambient temperature, from the teachings of the secondary references. In this respect, the citation of Hagio et al. as the primary reference is improper, and hence the §103 rejection over Hagio et al. in view

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of Laas et al. and Nakamura et al. and Hannah et al. is also improper.

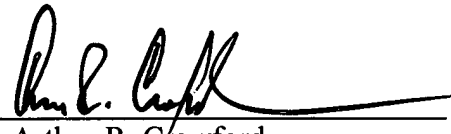
Thus, the §103 rejection is groundless and improper and therefore, should be withdrawn.

Applicants submit that the claims are in condition for allowance and earnestly solicit an early Notice to that effect. The examiner is invited to contact the undersigned if any further information is required.

Respectfully submitted,

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By: \_\_\_\_\_



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